BUILDING DIVISION DIRECTIVE
B-001

INTERIM DIRECTIVE ON MANUFACTURED WOOD AND STEEL SHEAR PANELS BY SIMPSON

Background

ICC-ES published the acceptance criteria for prefabricated wood shear panels (AC 130-07) and cold-formed steel shear panels (AC 322-07) last October 2007. However, wood and steel Strong-Wall panels by SIMPSON have not been tested using these newly published criteria and therefore are not approved by ICC-ES as alternatives to light-framed shear walls described in the 2006 International Building Code (IBC) and 2007 California Building Code (CBC). The City of San Jose Building Division engineers have reviewed existing test data under previous versions of the acceptance criteria to determine how the current allowable load tables compare to the newly published acceptance criteria AC 130-07 and AC 322-07.

Guidelines for Design, Plan Check and Field Inspection

Until tested by ICC-ES using the recently published criteria, and until approved by ICC-ES for use under the 2006 IBC, SIMPSON Strong-Wall panels may be used as alternatives to light-frame shear walls in the City of San Jose when the following criteria are met:

1. Both wood and steel Strong-Wall panels shall be used directly on concrete or CMU foundations in light-frame construction without mud sill, raised floor framing, or cripple walls.

   Exception: Two-story stacked steel shear panels braced by 2nd floor wood framing system shall be allowed on concrete or CMU foundation.

   Exception: For 1-story conventional light-frame construction, SIMPSON wood Strong-Wall panels may be allowed as alternative bracing panels sitting on raised floor foundation system.

2. No balloon framed Strong-Wall panels are allowed regardless of the foundation system used.

3. No double panels (back-to-back) are allowed at any location or along any braced wall line.

4. A gap shall not be allowed between the panel and top plates or between the panel and beam/header. The beam/header shall be of Structural Composite Lumber (SCL) with the moisture content of not more than 16% at the time it is fastened to the panels.

5. The allowable loads of Strong-Wall panels shall be determined from the SIMPSON "STRONG-WALL Shearwalls" Catalog C-SW07 (2006 IBC Tables), with the following reductions in allowable loads:

   5.1. The allowable shear capacities of wood Strong-Wall panels and Garage Portal systems shall be reduced 15%. The allowable shear capacity of 48" wide wood shear wall panels shall be reduced 25%.
   5.2. The allowable shear capacities of steel Strong-Wall panels shall be reduced 33%.
   5.3. In addition to the reduction factors specified in 5.1 and 5.2, allowable shear capacity shall be reduced in proportion to the actual tension capacity of hold-down bolts based on reduced edge and/or end distances and the actual strength of the concrete and the CMU foundation.
   5.4. The allowable axial (vertical) load shall be limited to 4000 lbs maximum for both wood and steel Strong-Wall panels and Garage Portal system.

6. Neither wood nor steel Strong-wall panels shall be used for the design of buildings of occupancy category III and IV per Table 1604.5 of the 2007 CBC.

7. R=6.5 may be used for the design of manufactured Strong-Wall panels in the direction considered. When such panels are used in line with other types of shear panels, only one type of panel shall be considered as the lateral resistance element along such wall line. The design shall be governed by whichever has the lowest allowable shear capacity and "R" value.

8. Except for one-story conventional construction, the Engineer of Record shall check:

   - Concrete foundation/grade beam capacity and soil bearing pressure under coupled tension and compression load at ends of Strong-Wall shear panels.
   - Tension capacity of hold-down bolts based on reduced edge and end distance as detailed on the plans.

9. All installations shall use the respective manufacturer's approved anchor bolt template.

10. This directive shall be effective March 1st, 2008 and shall be subject to re-evaluation after December 31st, 2008.

Approved by

Edward Tolentino
Chief Building Official

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